SEED-TIME AND HARVEST.

A farmer furrowed his swarded field,
And faltered not for the day;
He felt from the north a frost-wind blow,
And the path of the sun was gray,
And the wheat-bird's whistle he heard from the bough,
And he knew that the weevil oft followed the plow.

He bent his lowly form to the task,
Believing his labor a prayer;
So he plodded the pace of a cheerful man,
Preparing his ground with care;
Whistled and plodded, then cast amain
For the harvest hour the seeding grain.

A farmer sat in his cottage door,
Nodding a noon-tide nap,
And the whitened wheat across the way
Waved on the meadow's lap;
With heavy heads, in a slumbering haze,
The stalks bent down in the August days.

As the farmer dozed, he dreamed and smiled,
For his acres waved on his eye;
And then the clink of the reapers he heard,
And his stacks and his mows swelled high;
And over his cheek a soft tear crept
For the joy he felt as he nodded and slept.

He woke, in the haze of the hot afternoon,
In health was he bent to the snath,
And over the field the gavels stretched
In many a winding path;
The vision he saw had lightened his task,
And he learned that to pray we in labor should ask.

Rural Topics.

CONDUCTED BY WILLIAM SAUNDERS,
WASHINGTON, D. C.

[Correspondence is solicited to this column. Communications addressed to the Rural Department of THE NATIONAL TRIBUNE, 615 Fifteenth Street, Washington, D. C., will be appreciated.]

TO PATRONS OF HUSBANDRY.

The conductor of *Rural Topics* is very desirous that the publisher of THE NATIONAL TRIBUNE should be placed in possession of the address of either the Master, Secretary, or Lecturer of each and every Subordinate Grange, so that a copy of the paper may be furnished for perusal by its members. It is proposed to make the paper a welcome visitor to the home of every member of the Order, and the *Rural Topics* column will, if possible, be kept up to the progressive plane of other departments of the paper.

CHINESE OIL-BEAN.—Recently at the Atlanta exposition Mr. Atkinson, of Boston, distributed beans received from China, where they are largely used for the manufacture of oil and for other domestic purposes. Having seen a few of these beans, we find that they are the seeds of *Glycine Soja* (*Soja hispida*), a low-growing Asiatic plant, which very much resembles the common bush bean of our gardens. Samples of these beans have been frequently imported during the last thirty years. The Japan expedition procured a supply of both the white and red-seeded varieties, which were distributed and cultivated as an experiment after the arrival home of the expedition. It is the well-known soy bean, which is largely used in China and Japan (called miso by the Japanese) for making a kind of sauce called sooja or soy. The manner of making it is said to be by taking equal quantities of the beans and bruised wheat, and boiling them together until soft; the mixture is allowed to ferment, after which salt and water are added and the liquor strained, after which it is placed in a stone jar, where it is kept tightly closed until used.

Of late years the beans have been much used for the manufacture of oil, and the refuse pulp after the oil is expressed is made into cakes the size and shape of large cheeses, weighing about 60 pounds, which are used as food for live-stock. This bean-cake is also very extensively used as manure, especially for the sugar-cane plantations in the southern parts of China, and is an article of considerable domestic commerce in that country. The oil made from the fresh beans is said to be much better than that made from beans that have been gathered for two or three months. The bean-oil and bean-cake can be kept for a long time without spoiling.

The beans can be grown in any locality where the common bush bean can be grown.

THE LESSON OF THE GARDEN.—A garden is a beautiful book, writ by the finger of God; every flower and every leaf is a letter. You have only to learn them—and he is a dunce who cannot, if he will, do that—and join them, and then go on reading and reading, and you will find yourself carried away from the earth to the skies by the beautiful story you are going through. You do not know what beautiful thoughts—for they are nothing short—grow out of the ground, and seem to talk to man. And then there are some flowers, which always seem to me like over-dutiful children; tend them ever so little, and they come up and flourish, and show, as I may say, their bright and happy faces to you.—*Douglas Jerrold.*

PLEASURES OF INSECTS.—"Insects generally, must lead a truly jovial life. Think what it must be to lodge in a lily. Imagine a palace of ivory or pearls, with pillars of silver and capitals of gold, all exhaling such a perfume as never rose from human censer. Fancy, again, the fun of tucking yourself up in the folds of a rose, rocked to sleep in the gentle sighs of summer air; nothing to do when you awake but wash yourself in a dew drop, and fall to and eat your bed clothes."

PRUNING SHRUBS.—Single specimens of shrubs on a lawn, or in a garden, are frequently allowed to grow tall and ungraceful, sometimes to the extent of requiring stakes to support them, detracting much from their beauty of form and foliage. Still more detestable is that clipping process which subjects all alike to a uniform lump, or rounded ball. Most of our early summer flowering shrubs bloom most profusely on the young shoots of the previous year's growth, so that all pruning in winter will tend, so far, to diminish the abundance of flowers, which may at times be desirable. The best time to prune most of these shrubs is immediately after the bloom fades in early summer, and the operation will mainly consist in judiciously thinning out the shoots, cutting them close off at the ground, which will encourage fresh shoots to follow and thus renew the plant. *Spirea prunifolia* and *Spirea Reevsii*, two of the best flowering shrubs, may be formed and maintained into compact yet graceful bushes by attention to removing or shortening misplaced branches. The golden bell (*Forsythia*) so beautiful during early spring, is naturally a spreading, straggling growing plant, with a constant tendency to send forth strong willow-like shoots from the base; this and plants of similar habit should be occasionally looked at during growth, and the joints of such strong growths pinched or broken off when about eighteen inches in length, which will induce them to form numerous side branches or shoots, and by this means they can be formed into massive, well formed plants. *Deutzia scabra* and *Deutzia crenata* are much improved in beauty of both foliage and flowers by thinning out most of the old wood, after it has flowered, which allows space for the young growths to develop; the double flowering form of *D. crenata* is one of the finest shrubs that we possess. These plants should be treated, so far as regards pruning, in a somewhat similar way to that of the raspberry,—old shoots removed and young ones encouraged. The beauty of isolated plants on a lawn depends much upon their shape and regularity of branches; the lower branches should spread so as to nearly meet the grass and cover the lowermost stems, thus presenting an appearance of a well-formed mass of vigorous foliage.

In shrubbery borders or beds, where individual beauty of plants is comparatively lost, and where only a general massiveness of growth is the object sought, this care is not so essential, although judicious pruning will increase the beauty of foliage, and tend towards keeping the plants in healthful growth.

WINTER COVERINGS FOR PLANT FRAMES.—In protecting pits and hotbeds from frosts there are some simple points which should be kept in view. Everything should be kept as dry as possible in frosty weather; dampness from whatever source, whether it arises from insufficient drainage of the interior or by using damp material for covering, should be carefully avoided. Where no artificial heat is applied there will not be much occasion for frequent waterings, and the dryer the soil can be kept without injury to the plant the less effect will cold have upon it. When water is applied it should be early in the day, choosing bright weather, and ventilate to get rid of superfluous moisture before the evening. Another important point is to endeavor to inclose a stratum of air reposing between the upper surface of the glazed sashes and the protecting material. A single cover of canvas, if elevated three or four inches above the glass by a light frame-work, so as to inclose a portion of air between the sashes and the cover, will exclude frost more effectually than half a dozen thicknesses of covers would do if placed in direct contact with the glass. Eight or ten inches of thickness of loose straw or dry leaves form a good protection. It is not to be expected that many plants will bloom during winter in a frame of this kind, but many of the hardier kinds of summer flowering plants, such as petunias, verbenas, geraniums, centaureas, roses, &c., may be safely carried over for spring planting.

KEEPING VEGETABLE ROOTS.—The system of keeping parsnips, oyster-plants, carrots, &c., in the ground where they have grown and taking them up as required for use is very good so far as the roots are concerned, but where the ground freezes to a great depth there is difficulty in reaching them during freezing weather; even if protected from freezing there is still the inconvenience of exploring for them under a layer of snow, as may happen. Again, when the crop is not removed, it prevents the soil from being turned over for exposure to the atmosphere during the winter months, and it is not every cultivator who can afford to lose this advantage, particularly on adhesive soils. The better mode is to lift these roots and keep them in a dry cellar, where they can be covered with dry sand. Choose a dry day for lifting and storing, and use the precaution not to break any portion of the fleshy roots more than can be avoided. Of course the leaves should be removed, but they should not be so closely cut as to injure the root.

WATERING PLANTS IN POTS.—The application, or rather the misapplication, of water, kills more pot plants than anything else in their management. It is also a subject that will not admit of making definite rules for its guidance, so much depends upon individual circumstances. When the soil is wet, it of course requires no water, yet many persons water their plants daily. When the soil is dry, sufficient water should be given to wet every portion of it, so that all the roots may be reached by it; yet many persons content themselves by daily dribbling a little on the surface, and the water never percolates more than an inch into the earth. Plants having a large amount of foliage, and those that have filled their pots with roots, will require more water than those which present the opposite of these extremes. Plants maturing their growth, or coming towards a state of rest, should receive a gradually diminishing supply, not, however, by curtailing the quantity of water at each application, but by lengthening the period between them. Merely wetting the surface of the ground is of no value to the deeper parts of the roots. To ascertain accurately whether or not the soil in the pot is dry, give the side of the pot a sharp rap with the back of the hand; if it produces a clear, ringing sound, it is a sure sign that there is not much moisture within it.

HEN-HOUSE GUANO.—The sweepings of the hen-house through winter may be manufactured into an excellent and powerful guano by the use of a sufficient absorbent, to be applied in thin alternating layers with the droppings. The mode which we have found convenient is to use barrels, first placing an inch of road-dust in the bottom, then half an inch or an inch of droppings, then road-dust, and so on in alternating layers till the barrel is full. If this mixture is broken up and pulverized the following spring, it is reduced to a good condition to drill in with seeds or to drop in the hills of any planted crop. If road-dust has not been secured, sifted coal ashes in larger quantity may be employed, a mixture of dry earth or loam with which improves it, or a mixture of powdered charcoal serves a good purpose. The thinner the alternating layers are made the easier and more perfect will be the reduction of the mass to powder.—*Country Gentleman.*

ACTION OF FROST ON LAND.—A clod of earth will retain a certain portion of water,—this during a frost will become ice; in doing so it expands, and of course must separate the particles of soil further from each other than naturally; when frozen, the clod still retains its shape on account of the solidity of the ice, but immediately a thaw takes place the water resumes its original bulk, which then no longer supports the earthy particles, and they must as a consequence become, as it were, independent of each other, and fall apart, and having been so loosened, are perfectly friable, falling to powder by the least touch. The great utility of this crumbling of the soil in an agricultural point of view is obvious. By this means a much larger amount of surface of earth is exposed to the action of the air than otherwise would be. The roots of plants growing in such land are enabled to penetrate, as it were, into a new soil. Some of the hardest rocks contain the most valuable ingredients as food for plants; much of the cultivated land has been originally produced by the surface of the rock which is now below the verdant field having been crushed through the intermediate action of frost.

GROWTH OF PLANTS BY ELECTRIC LIGHT.—For some time past Dr. Siemens, of England, has been making experiments with electric light in the growth of plants. It has been clearly established that etiolated and blanched plants which have purposely been grown in the dark until no green color pervaded the leaves, have elaborated chlorophyll and assumed a green color, under the influence of electric light, so that, as a matter of fact, the electric light seems to have essentially the same power on plant growth as the rays of the sun. The application of this light has so far been only of an experimental character. It was found that, in a glass house, plants that came in direct contact with the streams of light were injured, but a sheet of glass, placed so that the light must pass through it, counteracts these evil effects. Another difficulty appears to be the proper diffusion of the electric rays, and their equal concentration over a given area, in order that the light may act upon plants as the sun's rays would do on a bright day. Whether this effect will be best obtained from large centers or from a number of smaller ones remains to be seen; but of the ultimate success and mastery of these details there can hardly be a doubt, considering what has already been accomplished by science in the same direction. It may revolutionize the system of forcing fruits, vegetables, and flowers out of their natural season, for although it is a matter of general belief that plants must rest at night, and that it is a matter of fact that plants become etiolated if forced to grow in the absence of light, yet it may not necessarily follow that they may not grow on uninterruptedly if sufficient light be present. We see something analagous to this in the rapid growth of plants in northern latitudes where daylight, for a brief season, is almost continuous.

From an economic point of view but little can yet be judged as to the value of the experiment. Dr. Siemens, it is stated, uses the "waste steam" from his driving engine to heat a range of greenhouses and forcing houses. The engine boiler thus supplies both light and heat, undoubtedly a great boon to gardeners and florists. In addition to this the electric force is used to pump water, drive straw-cutting machines, and perform a variety of services of a similar kind.

RAPID GROWTH OF VEGETABLES IN NORWAY.—The influence of the long duration of light during the summer month is well exemplified in the growth of vegetables in the higher latitudes in Norway. At 70 degrees north, it was found that ordinary peas grew at the rate of 3½ inches in twenty-four hours for many days in summer, and that some of the cereals also grew as much as 2½ inches in the same time. Not only is the rapidity of growth affected by the constant presence of light, but these vegetable secretions which owe their existence to the influence of atomic force on the leaves, are also produced in far greater quantity than in more southern climates; hence the coloring matter and pigment cells are found in much greater quantity, and the tint of the colored parts of vegetables is consequently deeper. The same remark applies to the flavoring and odoriferous matters, so that the fruits of the north of Norway, though not equal in saccharine properties, are far more intense in flavor than those of the south.—*Dr. Mueller.*

WHEAT.—The following remarks are taken from an admirable little work entitled, "Wheat Culture: How to double the yield and increase the profits," by Col. D. S. Curtiss, Washington D. C.

We will here sum up in brief, the process or requisites essential to produce increased yield of wheat and continued good crops, as follows:

1. *Perfect drainage*, by both under drains and surface ditches, as shall be found necessary to prevent stagnant water in the sub-soil or any standing water on the surface, for any length of time after the thawing of ice and snow, or after heavy showers.

2d. *Deep cultivation*, by sub-soil plowing or trenching, at least twelve or fifteen inches deep, in order that plant roots may run deeply for sustenance, and also, that moisture may rise from below to the surface in seasons of drought.

3d. *Alkaline matter.* The soil needs a liberal supply of ashes, lime, or other substances of alkaline properties, and also salt. A two-fold benefit is caused by these ingredients in the soil, namely: they aid largely in dissolving the silica (or flint), and they are, to a considerable extent, preventives to ravages of insects and of diseases,—especially the salt, which is effective, very often, in preventing injury by rust. Any of all these things are beneficial to the wheat crop, particularly where there is prevailing liability to rust and crinkling straw.

4th. *Clover and plaster rotation.* The frequent use of and plowing under of various green crops as manures; the plaster to be applied to the clover or other crop to be plowed under, to induce ranker growth, together with the liberal application of lime to the land by being harrowed into the surface before seeding.

5th. *The seed.* Careful selection of, and brining the seed in salt, and drying in lime or plaster.

6th. *Harrowing and rolling.* The land, just before seeding with the drill, should be thoroughly harrowed and rolled, to crush all lumps and completely powder the soil, so that the largest possible portion of it will be available to nourish the young plants. Another object is, to make a soft, mellow, seed-bed, into which the drill can drop the wheat, and have fine earth to fall back into the drill furrows to cover the grain perfectly at even depth, with no hard, coarse lumps to hinder or smother the growth of the young wheat.

7th. *Hoeing or cultivating* the growing wheat in fall and spring, often enough to keep down weeds and keep the soil mellow and moist, which will greatly increase healthy growth, letting in air and sunshine more freely, and will also facilitate the applying of remedies for diseases, as well as the dislodging of insects when they infest the crop.

8th. *Early harvesting.* Much will be added to quantity, quality, and safety of the crop, by early harvesting, while the wheat is in the soft, dough state, which tends to prevent injury by rust, loss by shelling, and bad weather; enables the work to be better done, by not crowding so much into a short space of time, and the work is more pleasant, as the straw is softer and tougher; furthermore, early harvest makes heavier grain, while the same weight of grain makes more and better flour.

VIENNA BREAD AND ROLLS.—Professor E. N. Horsford gives the following description of these famous productions:

"The three most important factors or ingredients in the production of these delicious, unequalled bread and rolls are, *first*, the selection of flour made of the very *best wheat*—that is, dry and ripe, in which is the largest proportion of *gluten* compared to the starch; and this best flour is made by a process of grinding in which as much of the proportion of the kernel next to the bran as possible is retained, in which is the large share of gluten; *second*, the use of proper *yeast* and right preparation of *dough*, about as follows: 8 pounds of flour, 3 quarts of milk and water in equal parts, 2½ ounces of press-yeast, and one ounce salt. This dough is covered and left in a temperature of 70° to 80° about 2½ to 3 hours, when it will present a puffed, smooth, tenacious form and yellowish color, and is elastic under pressure of the fingers, indentations gradually disappearing to evenness again. It is now ready to be cut and weighed into masses of one pound weight or less, if desired; *third*, proper *baking*. The oven should be of good brick or stone walls; the size of loaf and needed temperature are so fixed as to secure a perfect cooking of the whole mass, so that when taken out of the oven every part of it, crust and crumb, will be thoroughly done through—but none of it burned in the least—and whole, have an agreeable aroma while warm, and when cold shall be palatable in the highest degree, even without butter or other condiments of any kind.

SALT.—One of the most valuable results of the application of common salt to the soil is its property of assisting decomposition of various inorganic ingredients. Thus it increases silica in the straw of grain crops, and enables the farmer to enrich his lands without the danger of raising straw too weak to support the grain. It is also supposed to act in a similar beneficial manner when applied to soil in which fruit trees are planted, equalizing to some extent the elements of growth and imparting to the soil a moisture-absorbing property of great value in seasons of continued drought. Asparagus which has been treated with salt stands more erect and the stems are stronger than when salt is not used, but it may be doubted whether it improves the quality of the plant as a vegetable for consumption.

SADDLE HORSES AND SADDLE GAITS.

There is an increasing demand of late for good saddle horses, and many of the fairs this season are paying much more attention than formerly to this class. The Chicago fair especially is giving great prominence to saddle horses in its premium list, which may be taken as something of an indication of the drift of popular demand.

The gaits that especially commend a horse for use in the saddle are, the *walk*, the *fox trot*, the *single foot*, and the *rack*. The walk is a gait understood by everybody; but everybody does not understand that a good saddle horse ought to be able to go a square walk at the rate of five miles an hour. The fox trot is faster than the square walk, and the horse will usually take a few steps at this gait when changing from a fast walk to a trot. It may be easily taught to most horses by urging them slightly beyond their ordinary walking speed, and, when they strike the fox trot step, holding them to it. They will soon learn to like it, and it is one of the easiest of gaits for both horse and rider. The single foot differs somewhat from the fox trot, and has been described as exactly intermediate between the true trot and true walk. Each foot appears to move independently of the other, with a sort of a pit-a-pat, one-at-a-time motion, and it is a much faster gait than the fox trot. The rack is very nearly allied to the true pacing gait, the difference being that in the latter the hind foot keeps exact time with the fore foot of the same side, making it what has been called a literal or one-side-at-a-time motion, while in the former the hind foot touches the ground slightly in advance of the fore foot on the same side. The rack is not so fast a gait as a true pace, but it is a very desirable gait in a saddle-horse. In addition, the perfect saddle horse should be able to trot, pace, and gallop, and should be quick, nervous, and elastic in all his motions, without a particle of dullness or sluggishness in his nature. His mouth should be sensitive, and he should respond instantly to the slightest motion of the rein in the hands of the rider. A poor and clumsy rider, however, will soon spoil the best-trained saddle-horse in the world, and such a person should never be permitted to mount a horse that is exceptionably valuable for that purpose. A "plug" horse and a "plug" rider may well go together, but keep a really good, well-trained saddle-horse for one who knows how to enjoy this most health-giving, exhilarating and delightful of out-door exercises.